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New data to the leeches of the subfamily Trochetinae (Hirudinea, Erpobdellidae)

by
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Abstract: New records of leeches of the genera *Trocheta* and *Dina* from freshwaters in Italy, Switzerland, France, Spain, Andorra, Morocco and Tunisia are listed. Two new African taxa, *Trocheta africana* sp. n. and *Dina punctata maroccana* ssp. n. are described
Keywords: Trochetinae, taxonomy, *Trocheta africana* sp. n., *Dina punctata maroccana* ssp. n.

Introduction

The erpobdellid leech fauna of the West Mediterranean area is still relatively unknown. Up to now, only a few authors gave faunistic information concerning the Iberian Peninsula and the Maghreb. Blanchard (1893, 1908), Johansson (1914, 1927) and Moore (1939) are the most important researchers for this region. The increase of faunistic and morphological information allows to characterise some species of the Trochetinae in a more precise way.

Material and methods

Leeches were collected by hand on various occasions. The collection contains material from France (leg. et det. Martin Hauser), Andorra (Gerhard Hutter), Switzerland (Hasko Nesemann), Italy (Andreas Allspach and Gerhard Falkner), Spain (Andreas Dorsch), Morocco (Martin Hauser) and Tunisia (Wolfram Graf). The figures are made by H. Nesemann.

Family Erpobdellidae

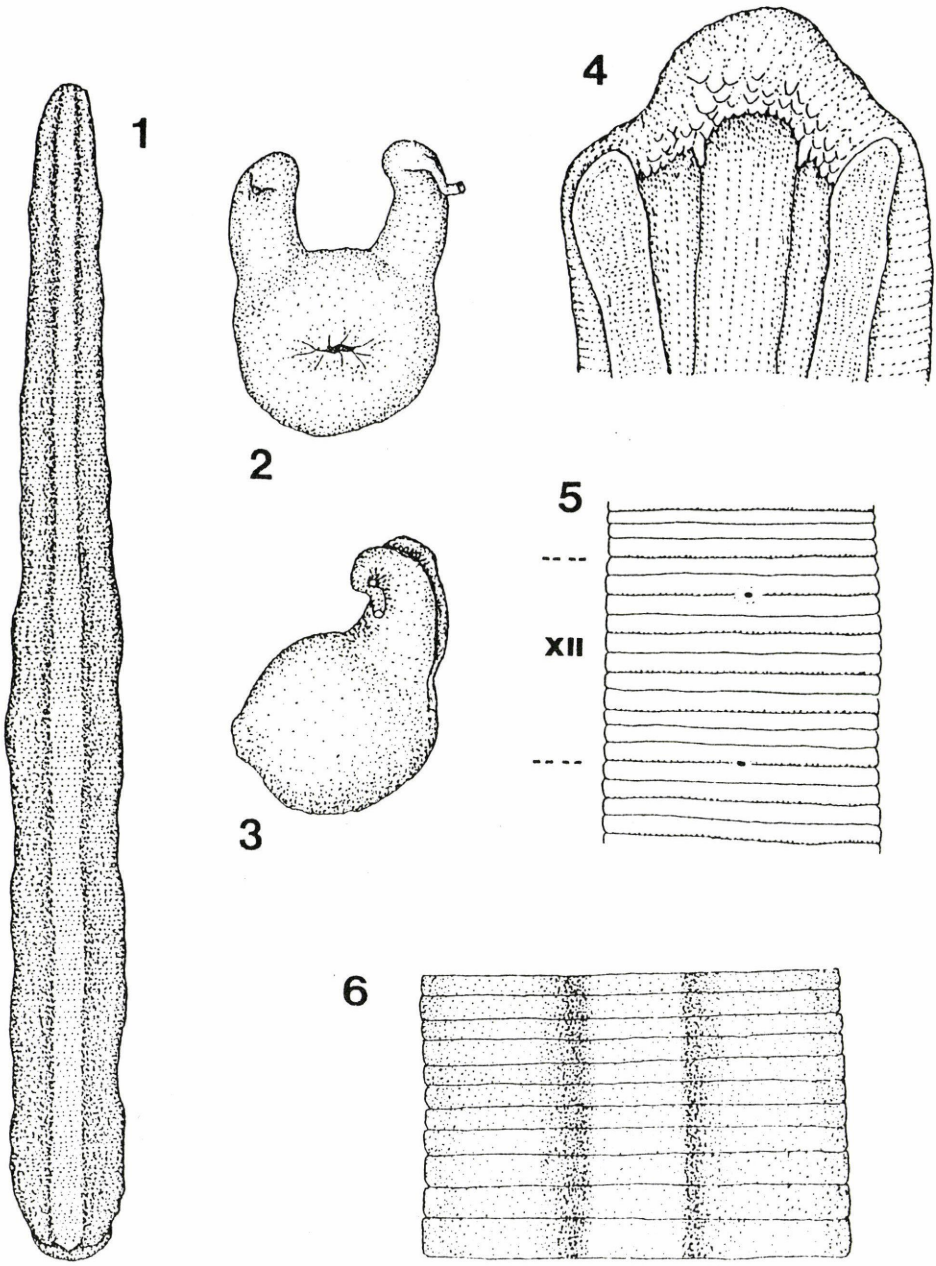
Diagnosis: Erpobdelliformes, testisacs numerous, lacking pharyngeal stylets and postcephalic eyes. The family can be divided into three subfamilies (Sawyer 1986).

1. Erpobdellinae: male paired ducts with preatrial loop, homonomously annulated; Genera *Erpobdella, Nephelopsis.*

2. Mooreobdellinae: preatrial loop of male paired ducts lacking, heteronomously annulated; Genera *Mooreobdella, Fadejewobdella.*

3. Trochetinae: male paired ducts with preatrial loop, heteronomously annulated; Genera *Trocheta, Dina, Archaeobdella.*

Annulus *b6* always widened, often subdivided into tertiary or even quartary annuli. Atrium sometimes very large, paragnaths often big. In the majority of the species, the dorsal part of the cranial sucker is elongated, forming a typical lip. Caudal sucker well developed, only



Figs 1-6. *Trocheta subviridis* Dutrochet, 1817, France, Pyrenees, Fabian, Aug. 1989, leg. M. Hauser; total length 57 mm; 1 = Dorsal view; 2 = Atrium, ventral; 3 = Atrium, lateral; 4 = Cranial sucker with pharynx and paragnaths, ventral view; 5 = Genital pores on somite XII; 6 = Dorsal pigmentation of one somite in the postclitellar region

sometimes reduced (*Archaeobdella esmonti*). Occurs in fresh or brackish waters of the Palaearctic region. The highest diversity is found in the Western Palaearctic area and the tributaries of the Black Sea.

Description of taxa found in West Mediterranean freshwaters

Trocheta subviridis Dutrochet, 1817

1817 *Trocheta subviridis* Dutrochet, Bull. Sci. Soc. philomat.: 130.

This species is relatively unknown and often confused with other species of the genus. For this reason, a diagnosis for *T. subviridis* is given. The description is based on new material from the collection of the authors. The species is distributed in northern Italy, France, Luxemburg, Southern England, and Ireland.

Material: France, Pyrenees at Fabian, catchment area of the Garonne, August 1989, leg. M. Hauser [1 specimen, preserved in formol]. England, small stream at Reading Berks, 18. 1. 1960, leg. K. H. Mann [6 specimens, ex coll. Hungarian Natural History Museum Budapest, preserved in etanol].

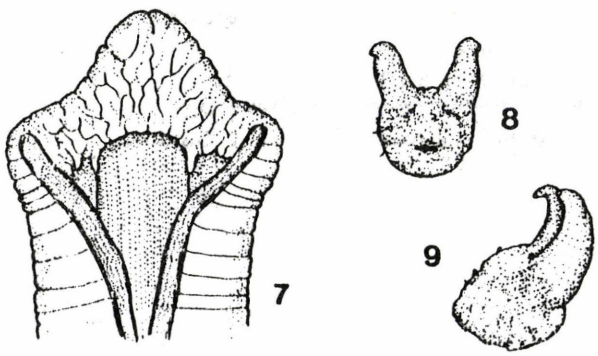
Description: Medium-sized to large leeches up to 140 mm length and a medium width of 15 mm; dorsally flattened, lateral fringes less prominent (Fig. 1).

Annulation: somites with 8 – 11 annuli, annulus *b6* in adult specimens always widened and heteronomously subdivided into three annuli of the same width. Annulation formula of the postclitellar somites *b1, b2, b2 (c3, c4), a2 (b3, b4), b5 (c9, c10), c11, d23, d24* (Figs 5, 6).

Dorsal part of the cranial sucker elongated. Paragnaths large and elongated, but more slender than in other species of the genus *Trocheta* (Figs 4, 7). Dorsal colour brownish with one pair of paramedian longitudinal stripes, lacking any papillae, spots or lines (Figs 1, 6); ventrally uniformously grey.

Genital pores separated by 6 – 9 annuli, male porus in the furrow XII *c2/c3* (or XII *c2/b2*), female porus in XII/XIII (XII *d24*/XIII *c1*) (Fig. 5); sometimes shifted caudad on XIII *c1*.

Atrium medium sized with short coiled cornua. The cornua reach somite XI (Figs 2, 3, 8, 9). *Trocheta subviridis* can always be recognized by the large distance between its genital pores (Fig. 5).



Figs 7-9. *T. subviridis*, England, small stream Reading Berks, 18. 1. 1960, leg. K. H. Mann; 7 = Cranial sucker with pharynx and paragnaths, ventral view; 8 = Atrium, ventral; 9 = Atrium, lateral

Trocheta africana sp. n.

Description: small leeches, preserved specimens reach a length of 15 – 28 mm (holotype 28 mm), dorsally flattened, lateral fringes lacking, the cranial sucker rounded (Fig. 8); in its habit, this species resembles *Dina lineata* (O. F. Müller, 1774).

Annulation: somites with 8 annuli, the two first narrow, followed by three wide and another three narrow annuli. Superficially, five narrow annuli are followed by three wide-spaced annuli. Annulation formula of the postclitellar region: *c1, c2, b2, a2, b5, c11, d23, d24* (Fig. 13). The annulation type resembles *Trocheta bykowskii* Gedroyc, 1813. Dorsal part of the cranial sucker less elongated than in all other *Trocheta*-species, paragnaths small (Fig. 11).

Colour of living specimens dark reddish brown, preserved specimens pale grey. Dorsally, four dark narrow longitudinal stripes are visible. The area between the inner paramedian stripes less pigmentated. This character is very well displayed in the cranial region (Figs 10, 13).

Caudal sucker of preserved specimens narrower than the maximum body width.

Genital pores separated by two annuli, male porus in the furrow XII *b2/a2*, the female porus in XII *b5/c11* (Fig. 12). Genital atrium small, rounded. The cornua are short and slender, bended outwards. The cornua reach the annulus *c2* (Figs 14, 15).

Locus typicus: Tunisia, Kroumirie 140 km W of Tunis, stream near Hammam Bourguiba, 27. 02. 1993, leg. W. Graf.

Type material [the type lot contained 5 specimens]: The holotype is preserved in the collection of the Department of Zoology, Hungarian Natural History Museum, Budapest; 1 paratype in the Senckenberg Museum Frankfurt, remaining three paratypes in coll. Nesemann.

Additional records: Tunisia, Monts de Téboursouk, mountain stream between Thibar and Téboursouk (Road 75), 28. 02. 1993, 1 specimen, leg. W. Graf; mountain stream near Ded Melah, 27. 02. 1993, 1 specimen, leg. W. Graf.

Etymology: This species is named *africana*, for it is hitherto the only known species of the genus *Trocheta* from Africa.

Habitat: little streams in the higher regions of North Tunisia and Algeria. Aquatic rheophilic species. The specimens were found under stones in the middle of the streams.

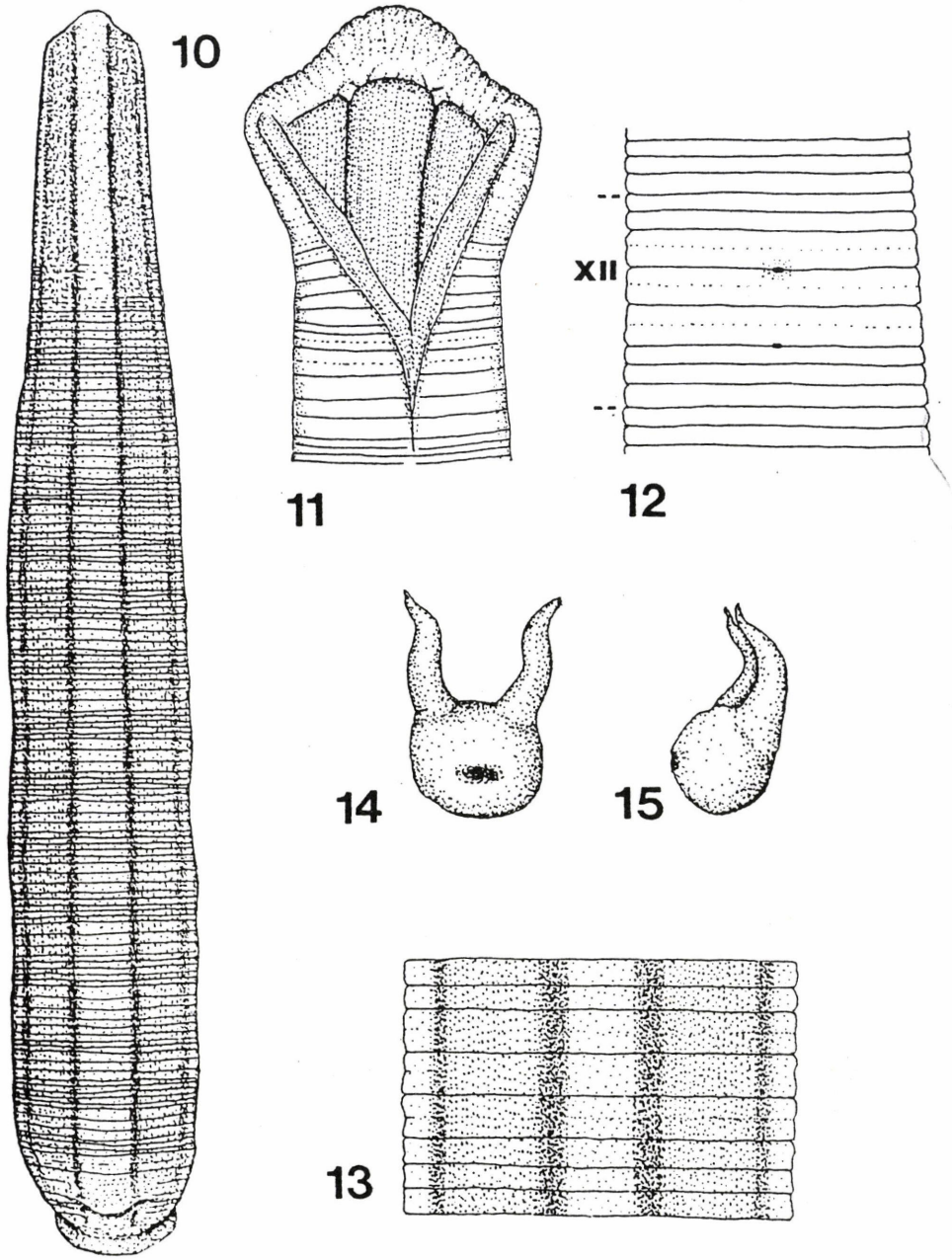
Distribution: only known from the localities cited and from one locality in Algeria, published as *Dina lineata* (O. F. Müller, 1774) by Johansson (1914). Most probably, the localities given by Blanchard (1908) as *Dina quadristriata* (Grube, 1850) belong to the new species of *Trocheta*. The records of Blanchard (1908) came exactly from the same area, which was investigated in 1993 by Wolfram Graf.

Dina punctata Johansson, 1927

1927 *Dina lineata* var. *punctata* et var. *notata* Johansson, Abh. Senckenberg. naturf. Ges., Frankfurt, 39 (3): 229, Fig. 5-6.

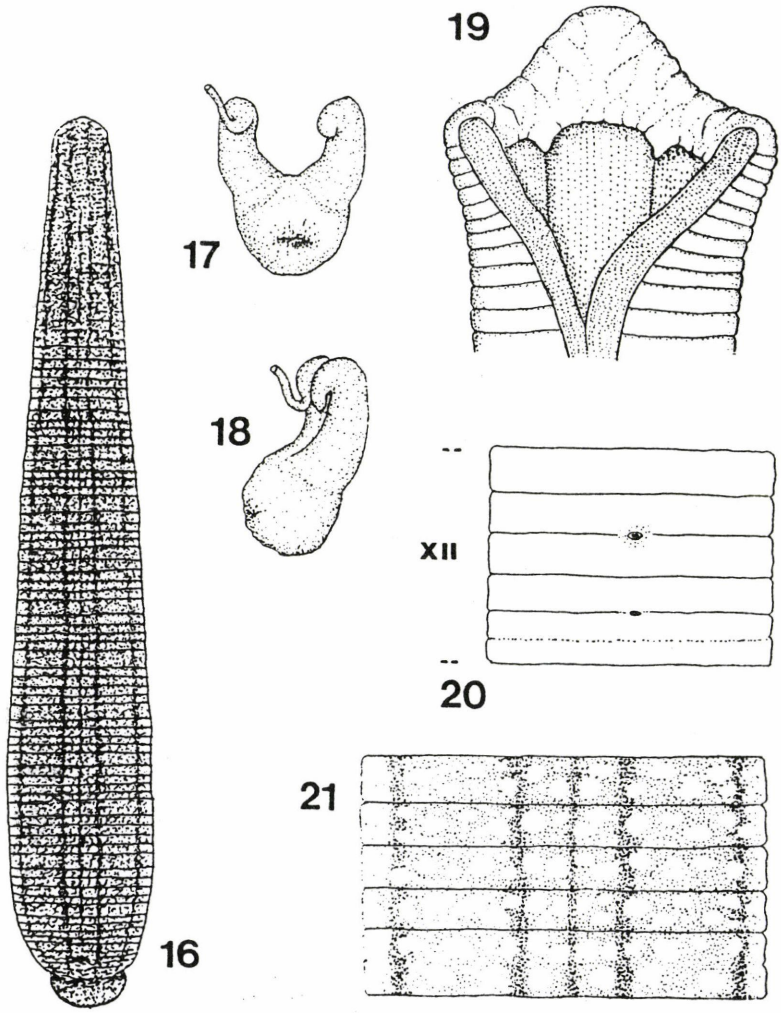
Dina punctata belongs together with *D. apathyi* and *D. stschegolewi* to the group of larger, dark coloured and yellowish spotted species, which was described as *Dina apathyi* complex (Nesemann 1990). *Dina punctata* ranges from South Western Europe, *D. apathyi* from the Pannonian Basin and *D. stschegolewi* from the Near East and Black Sea area. These species can be distinguished by their constant morphological and anatomical characters. In some areas, the species show sympatric distributional patterns.

The colour of *D. punctata* varies to a great extent. The description by Johansson was based on specimens from the Northern Ebro basin in Spain. The type material was checked, a detailed description was given by Nesemann (1990, 1993a, b). Based on additional material from this area, further information can be added (Fig. 16-21, 28). Up to now, two species of the genus,

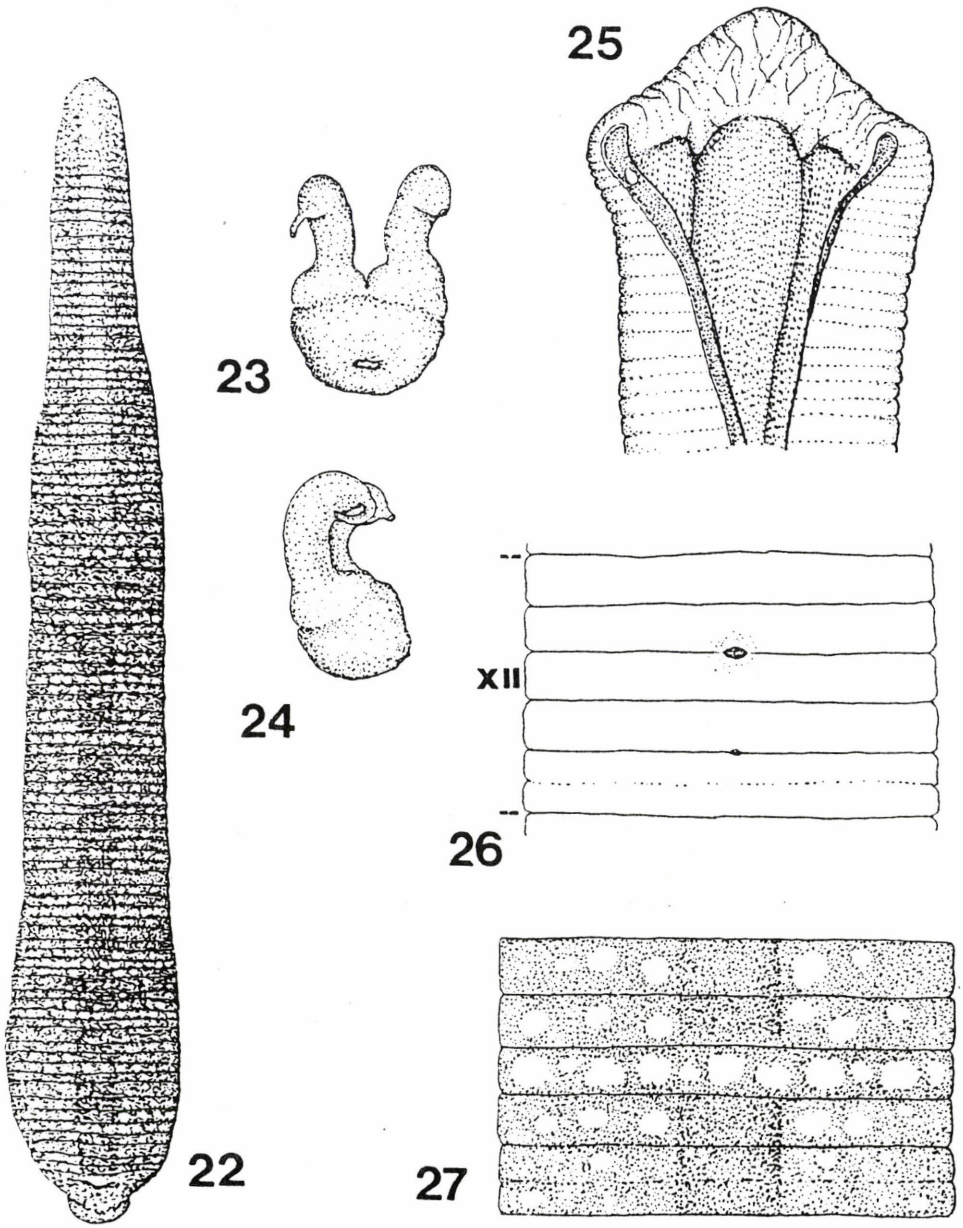


Figs 10-15. *Trocheta africana* sp. n., Tunesia, Hammam, leg. W. Graf, 27. 02. 1992, total length 28 mm; 10 = Dorsal view; 11 = Cranial sucker with pharynx and paragnaths, ventral view; 12 = Genital pores on somite XII; 13 = Dorsal pigmentation of one somite in the postclitellar region; 14 = Atrium, ventral; 15 = Atrium, lateral

Dina punctata and *D. lineata*, are known from the Iberian peninsula. Specimens of *Dina* from the Atlas mountains, Morocco, turned out to belong to a new subspecies of *D. punctata*. Most probably, some of the specimens described as *D. lineata* by Moore (1939: 86: "All three specimens of group *a* have the ground-colour above brownish and marked with four punctated black longitudinal stripes, of which the paramedians are the denser, like typical *Dina lineata*, and resembling the American *Erpobdella punctata*.") from Morocco can be considered to be conspecific to *Dina punctata maroccana* n. ssp.



Figs 16-21. *Dina punctata punctata* Johansson, 1927, Andorra, little stream near Soldeu, 13. 8. 1993, leg. G. Hutter; 16 = Dorsal view; 17 = Atrium, ventral; 18 = Atrium, lateral; 19 = Cranial sucker with pharynx and paragnaths, ventral view; 20 = Genital pores on somite XII; 21 = Dorsal pigmentation of one somite in the postclitellar region



Figs 22-27. *Dina punctata maroccana* ssp. n., Paratype, Morocco, Ifran, 5. 8. 1989, leg. M. Hauser, total length 47 mm; 22 = Dorsal view; 23 = Atrium, ventral; 24 = Atrium, lateral; 25 = Cranial sucker with pharynx and paragnaths, ventral view; 26 = Genital pores on somite XII; 27 = Dorsal pigmentation of one somite in the postclitellar region

Unfortunately, *Dina puncata* was often confused with the other species of this genus mentioned above. Specimens from Italy were recorded by Apáthy (1888: 750) under the name *Nephelis octoculata.* Sket (1968: 171, Fig. 29) recorded this species as *Dina apathyi* from two localities in Istria (Rizana river near Koper and environments of Tolmin).

Comprising the data available, *Dina punctata* has a disjunct area of distribution. In the northern part of the area, the species inhabits the northern alpine slope and the rivers Rhine and Danube. The southern part is found in the northern reach of the River Po. The third area is South Western France and Northern Spain. All European populations checked belong to the nominate subspecies.

Additional records: Ebro River basin: Andorra, little stream near Soldeu, 13. 8. 1993, leg. G. Hutter; Po River basin, Switzerland, canton Tessin, Laveggio near Riva-S. Vitale, 25. 05. 1989, leg. Nesemann; Laveggio millstream in Riva-S. Vitale, 27. 05. 1989, leg. Nesemann; Laveggio millstream 2 km South of Riva-S. Vitale, 27. 05. 1989, leg. Nesemann; Stream between Barbengo and Cásoro, 25. 05. 1989, leg. Nesemann; Sovaglia near Melano, 25. 05. 1989, leg. Nesemann; Magliasina North of Casalano, 25. 05. 1989, leg. Nesemann; Italy, Trentino Alto, Adige tributary of the Lago Toblino, North of the Lago di Garda, 01. 03. 1990, leg. A. Allspach; Italy, Vidalenzo near Busseto, 30 km North-West of Parma, 1992, leg. G. Falkner.

Dina punctata maroccana ssp. n.

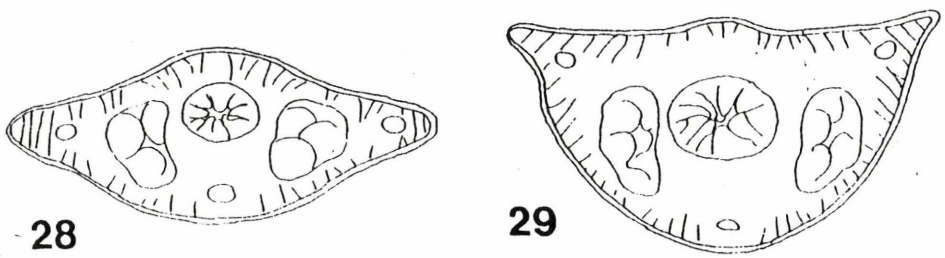
Description: large leeches, preserved specimens up to 45 mm length and 6 mm width (holotype, paratypes 39 – 47 mm), dorsally exceptionally flattened. Ventrally rounded. Prominent laterocaudal fringes (Figs 22, 29).

Annulation: somites with four narrow and one broad, sometimes subdivided, annuli. Annulation formula of the postclitellar somites *b1, b2, a2, b5, b6* (sometimes subdivided in *c11, c12*) (Figs 26, 27). Dorsal part of the cranial sucker elongated, large paragnaths (Fig. 25).

Dorsally brown to black colored, ventrally greyish. A broad, dark, longitudinal stripe is visible in the middle of the body. In the postclitellar region it is darker than in the praeclitellar. Each annulus is dark with grey or yellow spots. The annuli *b1* and *b2* bear 4 to 7 small spots, *a2* 8 big spots, *b5* 4 – 7 small and only a few spots on *b6* (Figs 22, 27).

Genital pores separated by two annuli, male porus in the furrow XII *b2/a2*, female in XII *b5/b6* (Fig. 26). Atrium expanded, cornua long and basally thickened. The form of the atrium is very similar to that of *D. punctata punctata* (Figs 23, 24).

Dina punctata maroccana ssp. n. is very similar to the nominate subspecies from Europe. The differences are the sharp lateral fringes and the flattened dorsal body form (Figs 28, 29). It differs from *D. apathyi* and *D. stschegolewi* by its form and colour.



Figs 28-29. Cross section of the postclitellar region, caudal view; 28 = *Dina punctata,* Danube in Vienna; 29 = *Dina punctata maroccana n.* ssp., Morocco, Ifran

Locus typicus: Morocco, Ifran, 5. 8. 1989, leg. M. Hauser.

Type material: holotype in Senckenberg Museum Frankfurt, 2 paratypes in coll. Kinzelbach and 2 paratypes in coll. Nesemann. The type lot contained 5 specimens.

Etymology: this subspecies is named for its type locality in the Moroccan part of the Atlas mountains.

Habitat: The leeches were collected from a montane limnocrenal with an altitude of 1750 m.

Distribution: *D. punctata maroccana* ssp. n. is known only from the localities cited.

Dina lineata (O. F. Müller, 1774)

1774 *Hirudo lineata* O. F. Müller, Vermium terrestrium et fluviatilum 1 (2): 49.

Material: Spain, Kantabria, small tributary of the upper Rio Saja, 10 km North Ablada, alt. ca. 1000 m, 17. 8. 1988, leg. A. Dorsch.

The specimens from this locality differ from *D. lineata lineata* in the position of the genital pores and the colour and form of the body. They are more flattened, the typical median stripes are lacking. Adult specimens are dark brown.

In most of the specimens, the male genital pore is in the furrow XII *b2/a2*, the female in XII *b5/b6*. In one adult specimen, the female is situated on XII in the furrow *c11/c12*.

The Spanish specimens resemble the East-Mediterranean *D. lineata concolor* Annandale, 1913, but they differ in their larger size and the dark pigmentation. More material from this taxon is needed to clear up its taxonomic position.

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